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EXAMINER	
PATEL, DHAIRYA A	

ART UNIT	PAPER NUMBER
2151	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/057,842	KAZEMI ET AL.	
	Examiner	Art Unit	
	Dhairya A. Patel	2151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/30/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communication filed on 10/19/2005.

2. This amendment has been fully considered and entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-8,11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Naredran et al. U.S. Patent # 6,070,191 (hereinafter Naredran).

As per claim 1, Naredran teaches a data storage system that provides dynamic remapping of resources, the data storage system comprising:

-a first network attached data storage device (Fig. 1 element S1-S3) for storing one or more data storage resources (column 4 lines 57-60);

-at least one client device configured to request data from the first network attached data storage device (column 4 lines 5-25);

The reference teaches client requesting documents stored locally on the document servers (first network attached data storage device).

-a first server (Fig. 1 element 14-1,14-2) in communication with the first network attached data storage device (column 4 lines 16-29);

The reference teaches redirection servers (first server) in communication with document server (first network attached data storage device) to direct request to the document server.

-a second server (Fig. 1 element 12) in communication with the first network attached data storage device, wherein the first and second servers communicate with the first network attached storage device via a local network (column 4 lines 16-29, lines 35-52); and

The reference teaches round-robin DNS server (second server) multiplexes request from the clients between the redirection server and then forwarding the request to the document servers.

-dynamic session redirector circuitry in communication with at least one client device via a stateful protocol and in communication with both the first server and the second server (column 4 lines 41-55), wherein the dynamic session director circuitry is configured to access the first network attached data storage device in response to the request from the at least one client device, the dynamic session redirector circuitry is configured to access the first network attached data storage device through either the

first server or the second server, the dynamic session redirector determining which server through which to access the first data storage device based upon the operational status of the first and second servers (column 4 lines 16-67).

The reference teaches redirector server (dynamic session redirector circuitry) is in communication with the client when the HTTP client request (stateful protocol) is received by the redirector program which is in communication with the round robin DNS server and the other redirection server (first server and second server). The redirector server accesses the document servers to forward the request from the client using other redirector server (accessing using first server or second server). The redirector program determines which server should service a particular request based on access rates of the servers to equalize the sum of access rates (column 4 lines 44-60).

As per claim 2, Naredran teaches a data storage system as in claim 1 wherein the operational status comprises a failure status of the first and second servers (column 4 lines 30-35)(column 6 lines 28-51).

As per claim 3, Naredran teaches a data storage system as in claim 1, wherein the operational status comprises a prediction of the expected load for the first and second servers (column 6 lines 23-27, lines 36-51).

As per claim 4, Naredran teaches a data storage system as in claim 1, wherein the operational status comprises a processing load being handled by the first and second servers (column 11 lines 55-67)(column 12 lines 1-35).

As per claim 5, Naredran teaches a data storage system as in claim 1, wherein the operational status comprises a measure of the memory utilization of the first and second servers (column 5 lines 1-7).

As per claim 6, Naredran teaches a data storage system as in claim 1, wherein the dynamic session redirector circuitry maintains a table listing the association between the first network attached data storage device and the server through which the dynamic session redirector circuitry accesses the first network attached data storage device, and wherein the dynamic session redirector rewrites the table when the first network attached data storage device through a different server (column 11 lines 61-67)(column 12 lines 1-29).

As per claim 7, Naredran teaches a data storage system that provides dynamic remapping of resources, the data storage system comprising:

-a first server(Fig. 1 element 14-1,14-2);

-a second server (Fig. 1 element 12);

-a plurality of network attached data storage devices (Fig. 1 element S1-S3) which are accessible through the first server and the second server wherein the first and second servers communicate with the network attached data storage devices via a local network(column 4 lines 16-29, lines 35-52)(Fig. 1); and

The reference teaches plurality of document servers which are accessible by the redirection server and the round-robin DNS server and round-robin DNS server (second server) multiplexes request from the clients between the redirection server (first server)

and then forwarding the request to the document servers (communicate with the network attached data storage devices).

-a dynamic session redirector in communication with at least one client device via a stateful protocol and in communication with both the first server and the second server, wherein the dynamic session redirector sends requests for access to at least one of the plurality of network attached data storage devices in response to a request for access to data made to the dynamic session redirector by the at least one client device (column 4 lines 16-67), and wherein the dynamic session redirector further comprises a table mapping at least one of the plurality of network attached data storage devices with at least one of the first server and second server (Table 1 column 14), and the dynamic session redirector sends the request for access to the network attached data storage devices to one of the first server and second server based upon the mapping between the network attached data storage device being accessed and the server listed in the table, and wherein the dynamic session redirector may remap any of the plurality of network attached data storage devices with one of either the first server or second server based upon the status of the first and second servers (column 4 lines 16-67)(column 11 lines 55-67)(column 12 lines 1-39)(Fig. 1 to 6).

The reference teaches redirector server is in communication with the client when the HTTP client request (state protocol) is received by the redirector program which is in communication with the round robin DNS server and the other redirection server (first and second server). The redirector server sends the request to access the document servers (one of plurality of network attached data storage devices) in response the

access request made by the client to the round-robin DNS server which forwards the request to the redirector server (column 4 lines 16-67).

The reference teaches redirector server comprises a mapping table for the document servers with the other redirection servers (first and second server) and the redirector server sending request to access the document severs to the other redirection servers based on the server listed in the Table (column 11 lines 55-67). The redirector server remaps the document server if there is a failed server and on which other servers are available based on the status (column 12 lines 1-39).

As per claim 8, Naredran teaches a data storage system as in claim 7 wherein the client is provided with a single system interface including the network attached data storage devices of the first and second server by the dynamic session redirector (Fig. 1) (abstract).

As per claim 11, Naredran teaches a data storage system that provides dynamic association of network attached data storage devices which are made available to clients connecting to the data storage system across a network, the data storage system comprising:

-a plurality of network attached data storage device means for storing of data (Fig. 1 element S1-S3);

-a first server means for providing access to the plurality of network attached data storage device means (Fig. 1 element 14-1,14-2);

-a second server (Fig. 1 element 12) means for providing access to the plurality of storage device means, wherein the first and second server means communicate with

the plurality of network attached data storage device means via a local network (column 4 lines 16-29, lines 35-52); and

The reference teaches round-robin DNS server (second server) multiplexes request from the clients between the redirection server and then forwarding the request to the document servers.

-a redirector means for receiving requests from a client for access to one of the plurality of network attached data storage device means, and for providing an association between the plurality of network attached data storage device means and one of the first server means and second server means, the redirector means also accessing one of the plurality of network attached data storage device means through the server means associated with the network attached data storage device means, the redirector means changing the association between any of the plurality of network data storage device means and the first or second server means based upon the status of the first and second server means (column 4 lines 16-67)(column 11 lines 55-67)(column 12 lines 1-39)(Fig. 1 to 6).

The reference teaches redirector server is in communication with the client when the HTTP client request (state protocol) is received by the redirector program which is in association between document servers with the round robin DNS server and the other redirection server (first and second server). The redirector server sends the request to access the document servers (one of plurality of network attached data storage devices) in response the access request made by the client to the round-robin DNS server which forwards the request to the redirector server(column 4 lines 16-67).

The reference teaches redirector server comprises a mapping table for the document servers with the other redirection servers (first and second server) and the redirector server sending request to access the document severs to the other redirection servers based on the server listed in the Table (column 11 lines 55-67). The redirector server remaps the document server if there is a failed server and on which other servers are available based on the status (column 12 lines 1-39).

As per claim 12, Naredran teaches a method for accessing data on .a plurality of network attached data storage devices comprising:

-receiving a request for access to one of the plurality of network attached data storage devices (column 4 lines 16-29, lines 35-52);

-looking up an association between the one of the network attached data, storage devices and one of a plurality of servers for accessing the plurality of storage devices, wherein the plurality of servers communicate with the plurality of network attached data storage device via a local network (column 4 lines 16-29, lines 35-52)(column 11 lines 55-67)(column 12 lines 1-39);

-accessing the one of the network attached data storage devices through the one of the plurality of servers (column 4 lines 16-29, lines 35-52);

-determining the load on at least one of the plurality of servers (column 11 lines 55-67)(column 12 lines 1-39) and;

-assigning new associations between the plurality of network attached data, storage devices and the plurality of servers based upon the load on at least one of the plurality of servers (column 11 lines 55-67)(column 12 lines 1-39).

As per claim 13, Naredran teaches a method as in Claim 12 wherein the step of accessing the one of the network attached data storage resources devices further comprises sending a first request to the one of the plurality of servers, and sending a second request to a second of the plurality of servers (column 4 lines 16-29, lines 35-52).

As per claim 14, Naredran teaches a method for accessing data on a plurality of network attached data storage devices comprising:

-receiving a request for access to one of the plurality of network attached data storage devices (column 4 lines 16-29, lines 35-52);

-looking up an association between the one of the network attached data storage devices and a plurality of servers for accessing the plurality of network attached data storage devices wherein the plurality of servers communicate with the plurality of network attached data storage devices via a, local network (column 4 lines 16-29, lines 35-52)(column 11 lines 55-67)(column 12 lines 1-39);

-sending a first request to a first of the plurality of servers for accessing the .one of the network attached data storage devices (column 4 lines 16-29, lines 35-52);

-sending a second request to a second of the plurality of servers for accessing the one of the network attached data storage devices (column 4 lines 16-29, lines 35-52);

-receiving a first response from the first server(column 4 lines 16-29, lines 35-52);

-receiving a second response from the second server (column 4 lines 16-29, lines 35-52);

-determining the load on at least one of the plurality of servers (column 11 lines 55-67)(column 12 lines 1-39); and

-assigning new associations between the plurality of network attached data storage devices and the plurality of servers based upon the load on at least one of the servers(column 11 lines 55-67)(column 12 lines 1-39).

As per claim 15, Naredran teaches a method for balancing the load among a plurality of servers being used to access a plurality of network attached data storage devices, the method comprising:

-maintaining a table of associations between a plurality of network, attached data storage devices and a plurality of servers where at least one of the plurality of network attached data storage devices is assigned to one of the plurality of servers and wherein the plurality of servers communicate with the plurality of network attached data storage devices via a local network(column 11 lines 55-67)(column 12 lines 1-39);

-evaluating the load imposed upon the plurality of servers by the network attached data storage devices associated with the plurality of servers (column 11 lines 55-67)(column 12 lines 1-39);

-determining whether the load imposed by the plurality of network attached data storage devices may be more evenly distributed among the plurality of servers by altering the associations between the plurality of network attached data storage devices and the plurality of servers(column 11 lines 55-67)(column 12 lines 1-39); and

-updating the table of associations between the plurality of network attached data

storage devices and the plurality of servers to reflect the more even distribution of load(column 11 lines 55-67)(column 12 lines 1-39).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 9,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naredran et al. U.S. Patent # 6,070,191 (hereinafter Naredran) in view of Tawil et al. U.S. Patent Publication # US 2002/0103913 (hereinafter Tawil).

As per claim 9, Naredran teaches a data storage system for providing a single system interface for multiple network attached data storage devices to clients connecting to the data storage system across a network via a stateful network protocol, the system comprising:

-a dynamic session redirector (Fig. 1 element 14-1,14-2);

-a plurality of servers connected via a communications network to the dynamic session redirector (Fig. 1 element 12, S1-S3);

-the dynamic session redirector configured to provide a single system interface for accessing the plurality of data storage devices to a client connected to the data storage system, the redirector configured to receive requests from a client using a stateful protocol and to provide a first communications session between the client and the redirector in response to a request from the client, the dynamic session redirector

sending requests for access to at least one of the plurality of data storage devices in response to the requests from the client, and wherein the dynamic session redirector further comprises a table mapping at least one of the plurality of data storage devices with one of the plurality of servers, and the dynamic session redirector sends the request for access to the data storage devices to one of the plurality of servers based upon the mapping between the data storage devices being accessed and the server listed in the table, and wherein the dynamic session redirector may remap any of the plurality of data storage devices to any of the plurality of servers based upon the status of the one or more servers (column 4 lines 16-67)(column 11 lines 55-67)(column 12 lines 1-39)(Fig. 1 to 6).

The reference teaches redirector server is in communication with the client when the HTTP client request (state protocol) is received by the redirector program which is in communication with the round robin DNS server and the other redirection server (first and second server). The redirector server sends the request to access the document servers (one of plurality of network attached data storage devices) in response the access request made by the client to the round-robin DNS server, which forwards the request to the redirector server (column 4 lines 16-67).

The reference teaches redirector server comprises a mapping table for the document servers with the other redirection servers (first and second server) and the redirector server sending request to access the document severs to the other redirection servers based on the server listed in the Table (column 11 lines 55-67). The

redirector server remaps the document server if there is a failed server and on which other servers are available based on the status (column 12 lines 1-39).

Naredran fails to teach a storage area network hub connected to the one or more servers; one or more raid controllers connected to the storage area network hub, wherein the one or more servers communicate with the one or more raid controllers via the storage area network hub; and a plurality of data storage devices resources-connected to the one or more raid controllers. Tawil teaches a storage area network hub connected to the one or more servers; one or more raid controllers connected to the storage area network hub, wherein the one or more servers communicate with the one or more raid controllers via the storage area network hub; and a plurality of data storage devices resources-connected to the one or more raid controllers (Fig. 3) (Paragraph 20)(Paragraph 21). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention was made to implement one or more server communicate with the one or more raid controllers via the storage area network hub. The motivation for doing so would have been so that HBA which is host based RAID controller provides an interface between PCI BUS of the server and the storage devices of the SAN (Paragraph 21).

As per claim 10, Naredran and Tawil teaches a data storage system as in Claim 9, Naredran further teaches wherein the redirector is further configured to send a request for access to the data storage devices to a second of the plurality of servers based upon the mapping between the data storage devices being accessed and the

server listed in the table (column 4 lines 16-67)(column 11 lines 55-67)(column 12 lines 1-39).

Remarks

5. As per remarks, applicant stated the following:

A). Applicant states Naredran fails to teach "a network data storage device that is accessible through first or second server with dynamic session redirector circuitry that controls which server accesses the network attached data storage device".

B). Applicant states Naredran fails to teach "a plurality of network data storage devices that are accessible through a first or a second server with a dynamic session redirector that controls which server accesses the network attached data storage devices".

C). Applicant states Naredran fails to teach "a plurality of network data storage devices that are accessible through first or a second servers with dynamic session redirector circuitry that controls which server accesses which network attached data storage device.

D). Applicant states Naredran fails to teach "a method of assigning new associations between the plurality of network attached data storage devices and a plurality of servers based upon the load on at least one of the plurality of servers".

E). Applicant states Naredran fails to teach "a method of determining whether the load imposed by the plurality of network attached data storage devices may be more evenly distributed among the plurality of servers by altering the associations between the plurality of network attached data storage devices and the plurality of servers".

F). Applicant states Naredran fails to teach "a plurality network data storage devices that are accessible through first or a second servers with a dynamic session redirector that controls which server accesses which network attached data storage device".

As per remark A, Examiner respectfully disagrees with the applicant because in column 4 lines 16-67, Naredran teaches the redirector server access the document servers to forward the request from the client using other redirector server (accessing using first server or second server). The redirector program determines which server should service a particular request based on access rates of the servers to equalize the sum of access rates (dynamic session redirector controls which server access the network attached data storage devices)(column 4 lines 44-60). Therefore the examiner cited portion of the Naredran patent reads on the claimed limitation.

As per remark B, Examiner respectfully disagrees with the applicant because in column 4 lines 16-67, Naredran teaches the redirector server access the document servers to forward the request from the client using other redirector server (accessing using first server or second server). The redirector program determines which server should service a particular request based on access rates of the servers to equalize the sum of access rates (dynamic session redirector controls which server access the network attached data storage devices)(column 4 lines 44-60). Therefore the examiner cited portion of the Naredran patent reads on the claimed limitation.

As per remark C, it states same remarks as remark B, therefore refer to remark B.

As per remark D, Examiner respectfully disagrees with the applicant because in column 11 lines 55-67 and column 12 lines 1-39, Naredran teaches rebalancing the network or table, if the one of the document server has failed between document server and redirection servers based on the load of one of the plurality of document servers (column 11 lines 55-67)(column 12 lines 1-39). Therefore the examiner cited portion of the Naredran patent reads on the claimed limitation.

As per remark E, Examiner respectfully disagrees with the applicant because in column 11 lines 55-67 and column 12 lines 1-39, Naredran teaches determining the availability of the server and determining if the server load needs to be rebalanced among the plurality of document servers evenly by adjusting the redirection probabilities used by the redirection servers (altering associations between plurality of network attached data storage devices and plurality of servers) (column 11 lines 55-67)(column 12 lines 1-39). Therefore the examiner cited portion of the Naredran patent reads on the claimed limitation.

As per remark F, it states same remarks as remark B, therefore refer to remark B.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A). "Network request distribution based on static rules and dynamic performance data" by Hu et al. U.S. Patent # 6,173,31.

B). "Method and apparatus for configuring a client to redirect requests to a caching proxy server based on a category ID with the request" by Pistriotto et al. U.S. Patent # 6,138,162.

C). "Method and system for directing a flow between a client and a server" by Colby et al. U.S. Patent # 6,006,264.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dhairya A. Patel whose telephone number is 571-272-5809. The examiner can normally be reached on 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on 571-272-3939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAP

ZARNI MAUNG
SUPERVISORY PATENT EXAMINER